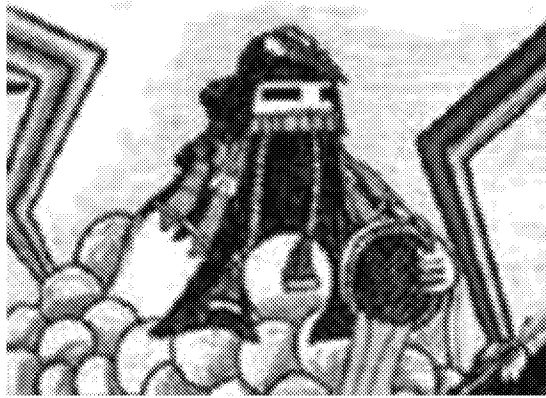


Hopi Water Resources Program



February 9, 2016

Hopi Water Resources Program

- The Water Resources Program (WRP) serves as a technical and regulatory program. While also providing construction management, water/wastewater infrastructure development and compliance assistance to village and tribal water systems and environmental protection activities and watershed management .

Delegated Authority and Enforcement Ordinances

- Hopi Water Code H-107-97
 - Hopi Water Quality Standards (Tri-Annually Reviewed) Amended 2011
 - Wellhead Protection Manual
 - Standard Specifications for Well Construction and Pump Installation
- Treatment in Same Manner as a State (TAS)-Hopi Water Resources Program
04/23/08: US EPA Region 9 announced the approval of Program Authorization (TAS)Application at April, 2008 RTOC.
- Delegated to Hopi Water Resources Program Clean Water Act (CWA) §401- No federal permit or license can be issued that may result in a discharge to the waters of the United States **UNLESS** EPA/Tribe/State certifies that the discharge is consistent with standards and other water quality goals, or waives certification.
- No 401 certification or waiver means No federal permit or license
- Applies to Storm Water Protection Plans as well
- Groundwater Enforcement Ordinance #57 H-032-2011
 - Civil Penalties up to \$27,500.00 per violation per day
 - Criminal Penalty (misdemeanor) up to 30 days incarceration per violation
- Wellhead and Source Water Protection Ordinance #58 H-033-2011

Current Program Undertakings

- Hopi Arsenic Mitigation Project (HAMP)
- Tuba City Open Dump (TCOD)
 - Moenkopi Water Issues
- Little Colorado River Adjudication
 - Amended Claims Filed
- Snowbowl Litigation
- North Central Arizona Water Supply Feasibility Study (NCAWSFS)
- Howell Mesa Well Field
- Grand Canyon Watershed Monument
- Clean Water Act 106 Pollution Control Program
 - Water Quality Standards
 - Data Analysis and Sampling
 - NPDES Permit Review
- Clean Water Act 319 Nonpoint Source Program
 - Tawapa
- Clean Water Act 104(b)(3) Wetlands Program Development
 - White Ruin Cienega Project
- SDS Project Coordination with Indian Health Service

Hopi Arsenic Mitigation Project (HAMP)

- To bring quality and quantity of water to Hopi Villages that are currently out of compliance with Arsenic Maximum Contaminate Level (MCL) of 10 ppb
- Total build out cost is estimated to be \$22 Million
- Current funding to date is approximately \$7 Million predominantly from US EPA

CHALLENGES FOR ARSENIC TREATMENT ON HOPI

- **FACTORS COMPLICATING TREATMENT OPTIONS (REGION SPECIFIC)**
- **Water Quality Issues**
 - –pH
 - –Alkalinity (Buffering Capacity)
 - –Scaling
 - –Arsenic Speciation, As III vs. As V
 - –Competing Ions
- **Operational Issues**
 - –Operator Certification Levels
 - –Operations and Maintenance Costs
 - - Infrastructure
 - Power



Hopi Arsenic Mitigation Project (HAMP) Background

- 2006: A Feasibility Study to explore arsenic mitigation compliance (IHS Project No. PH06-D33) was conducted and recommended non-treatment options (funded by a USEPA Drinking Water Tribal Set-Aside grant).
- 2008: A study to evaluate the existing drinking water system and recommend pipeline routes and alignments, identify right-of-way issues, and conduct an environmental assessment of the HAMP was done (IHS Project No. PH08-T38) (funded by IHS).
- 2010: Hydrogeologic study, utility management plan, and well drilling activities in the Turquoise Trail area completed (IHS Project No. PH10-E37) pursuant to an Inter-Agency Agreement with IHS (funded by a \$1.9M DWTSA grant).

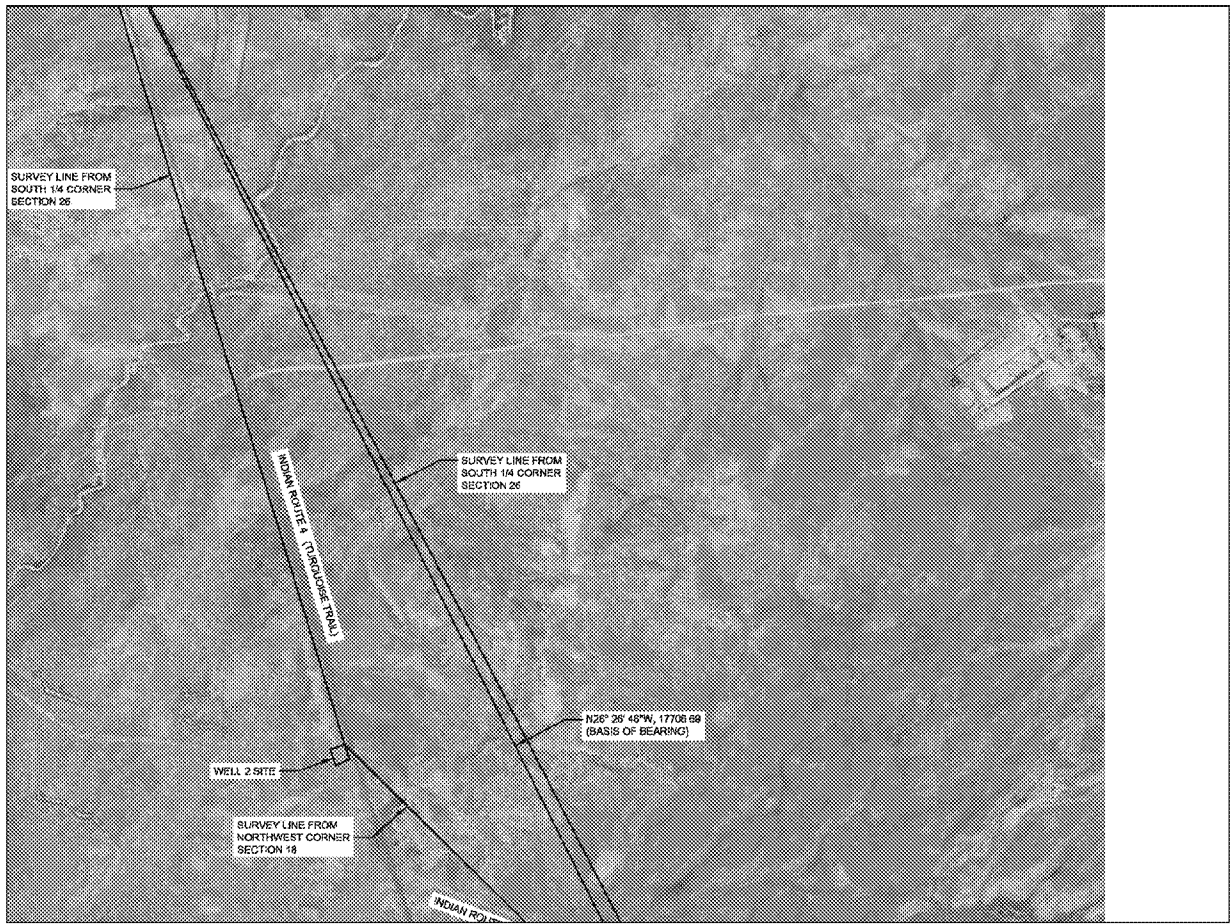
- 2011: Additional planning and construction activities for HAMP (funded by DWTSA grant for \$1.1M (IHS Project No. PH11-E55) and DWTSA grant for \$1.2M (IHS Project No. 12-E73)
- 2013: H-018-2013: Authorized the Chairman to sign a contract with Yellow Jacket Drilling Services, LLC to drill Turquoise Trail Well 2 and Well 3.

Hopi Public Utility Authority (HPUA)

- 2013: **H-039-2013: Approved the Hopi Public Utility Authority and Hopi Public Utility Commission Establishment Act (Ordinance 60)**
 - Created the Hopi Public Utility Authority – an independent authority to manage, operate, and maintain the utility systems for the Hopi Tribe, the Villages, and other approved rate-payers and participants. Water wholesale distributor to the Villages.
- Authorized to operate and maintain end-user systems if so authorized by the Village.
- Responsible for management, operation, maintenance, and repair of its own infrastructure.
- Shall manage its own finance system and set its own budget; is responsible for collecting payments.
- Shall develop and adopt an Operational Manual within 6 months.

- Created the Hopi Public Utility Commission – an independent commission to regulate the activities of the Hopi Public Utility Authority or any other public utility authority
- Seven commissioners selected by majority vote of the Tribal Council, to serve four-year terms.
- Promulgates regulations for the HPUA; sets rates, connection charges, and other fees.
- Must investigate all grievances (from a direct HPUA customer) and may investigate complaints (from any public utility), and can order HPUA to make repairs.

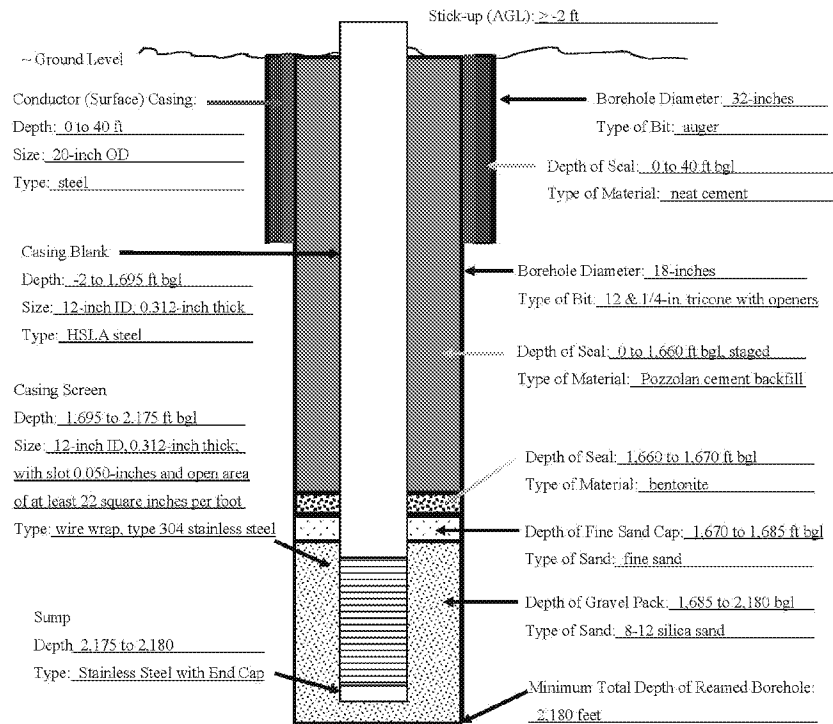
- 2014: IHS completed the Preliminary Engineering Report, EA, and Strategic Plan
- 2014: MOA with IHS signed (as authorized by H-038-2014)
- 2015: FONSI issued by IHS on June 2, 2015



HAMP WELL #2

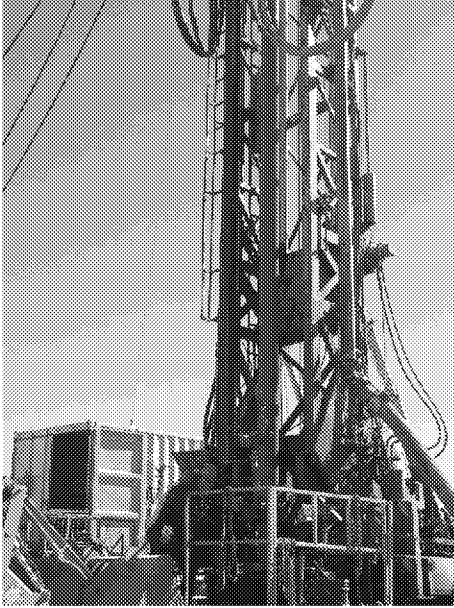


- Pilot Hole drilled to 2500'
- Screened Interval 1695'-2175' bgs
 - 480'
 - Finished Depth 2180' BGS
- Test were taken in different zones of the N Aquifer
- Arsenic results received to date:
- Lower N: 0.0046 mg/L sampled on 7/28/13
- Middle N: 0.0041 mg/L sampled on 8/5/13
- Upper N: 0.0029mg/L
- sampled on 8/8/13

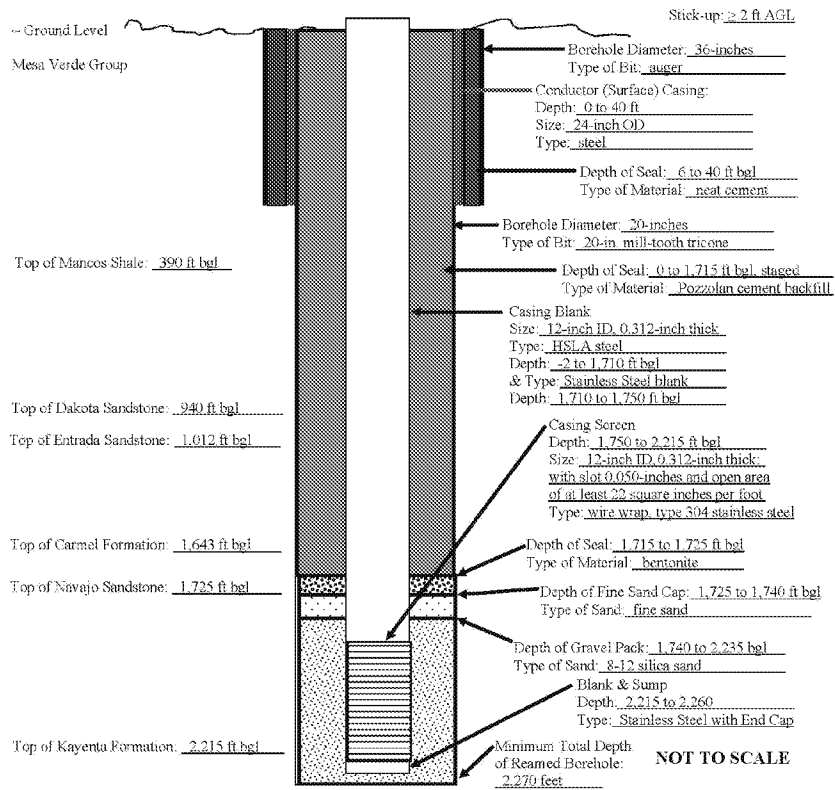


NOT TO SCALE

HAMP WELL #3



- Pilot Hole drilled to 2270'
- Screened Interval 1750'-2215' bgs
 - 465'
 - Finished Depth 2270' BGS
- Test were taken in different zones of the N Aquifer
- Arsenic results received to date:
- Lower N: 0.0045 mg/L sampled on 10/16/13
- Middle N: 0.0183 mg/L sampled on 10/17/13
- Upper N: 0.0111 mg/L sampled on 10/19/13



CHALLENGES TO OVERCOME

- Design and Construction Funding
 - Hopi Public Utility Authority needs to get up and running to apply for grants and additional funding
 - Contingent on Audits
- Multi-Party Agreements i.e.. Electric Power Service to Well Field
 - To continue to pursue APS Power or allow for NTUA option for well field
- Right of Way Issues / Realty Issues